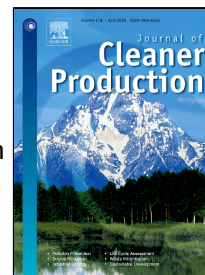


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A rule-based approach for preventive identification of potential conflictive criteria in mining operations in Chile



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1 **A rule-based approach for preventive identification of potential conflictive criteria in**
2 **mining operations in Chile**

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16
17 **Abstract**

18 Mining projects, as with many other extractive activities, result in divergent opinions during the
19 planning process which may trigger conflict. Early understanding of stakeholders' priorities can help
20 with the design of better projects while reducing sources of potential conflict. The objective of this
21 article is to present a rule-based method for decision support to be used in the first stages of the
22 project to identify disagreements in the form of potentially conflictive criteria. The method
23 proposed defines four attributes that should be evaluated for the different relevant criteria subject
24 to potential conflict: the importance of the criterion, the perceived risk, the fairness, and the
25 affected side's willingness to make dialogue. These attributes are used to construct a rule-based
26 system that can assess the degree of sensibility to conflict for each criterion. The application of this
27 rule-based approach is explained using information from a real past conflict in Chile, where nine
28 criteria were considered, four key decision makers were interviewed and 81 rules were created. The
29 output given by the rule-based system was compared with the conflict degree given by the four
30 decision makers. Results show that in 44.4% of the responses the rank level was the same, in 44%
31 there was a slight subestimation and in 11% an overestimation of the criterion conflictive level. The
32 method proposed incorporates new aspects into the analysis of sources of potential conflict and is
33 simple enough for an anticipatory screening of potential disagreements around the criteria. In
34 addition, this type of precautionary approach in the earlier stages of project appraisal can contribute
35 to a better project design and a constructive industry-community dialogue.

36 **Keywords:** socio-environmental conflict, environmental appraisal, rule-based expert systems,
37 stakeholders' participation, perceptions.

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